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TITLE: PROGRAM AND MANAGEMENT SUPPORT FOR THE OFFICE FOR MILITARY PERFORMANCE ASSESSMENT TECHNOLOGY

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This contract provided program and management support to the OMPAT, Walter Reed Army Institute of Research. Specific functions included the operation of the OMPAT field office, establishing and maintaining files and an automated file retrieval system, the development and maintenance of the OMPAT Local Area Network, Bulletin Board System, and the Performance Information Management System, and the procurement of office equipment and computer hardware and software to develop and support these systems. Working closely with the Director, OMPAT, the contract provided programming support in the form of program budgeting, initiating and maintaining funding documentation and correspondence for OMPAT projects and contracts, development of presentation materials and administrative support for OMPAT meetings.

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FOREWORD

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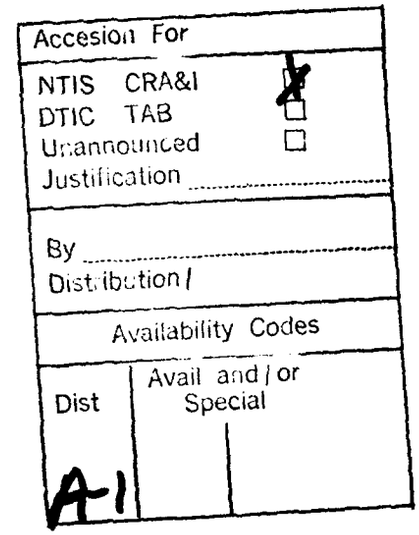

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1.0 INTRODUCTION

This report describes work performed by Morgan Management Systems, Inc. in providing programming and management support to the Office of Military Performance Assessment Technology (OMPAT).

1.1 **Background**. The OMPAT evolved from the Joint Working Group on Drug Dependent Degradation in Military Performance (JWGD3 MILPERF), which was established by the U.S. Army Medical Research and Development Command (USAMRDC) as a tri-service program to develop and test methods for evaluating the effects of chemical defense drugs on military performance. The mission of the OMPAT program was to conserve and expand the technical progress made by the JWGD3 MILPERF program and to broaden the range of application of performance and risk assessment instruments developed under that program. The OMPAT program was conducted as part of the Chemical Defense Research Program, Research Area Director V, USAMRDC under the execution authority of the Neuropsychiatry Division, Walter Reed Army Institute of Research.

1.2 **Scope of the OMPAT Program**. The JWGD3 MILPERF program effectively developed an integrated set of instruments described as the Performance Assessment Methodologies (PAM), which included a variety of individual performance assessment tests, batteries of tests, task analysis systems, performance modeling tools, simulator systems, and archives of human performance information and associated databases. Early OMPAT project efforts focused on refining, validating and standardizing those products and structuring and expanding the Performance Information Management System (PIMS). Later, emphasis was placed on the development and evaluation of sequential network models of military systems and the Synthetic Task Authoring System (SYNTAS) as tools for predicting human performance and performance decrement in multiple threat environments. Like the performance assessment instruments developed by the JWGD3 MILPERF, the refined performance and risk assessment instruments continued by the OMPAT program are finding wide acceptance and interest in industry and other government agencies (Dept. of Transportation, NASA, NATO AGARD, etc.). The program elements and products discussed below further demonstrate the scope of the program.

1.2.1 **Participating Laboratories.** The following military service laboratories and other government laboratories were active members in the OMPAT program and participated in program development and planning under USAMRDC guidelines by conducting projects and by reviewing and making recommendations on program progress and emphasis:

Air Force

AAMRL	Armstrong Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Dayton, OH
AFSAM	School of Aviation Medicine, Brooks Air Force Base, San Antonio, TX

Army

WRAIR	Walter Reed Army Institute of Research, Washington, D.C.

Navy

NAMRL	U.S. Naval Aerospace Medical Research Laboratory, Pensacola, FL
NBDL	U.S. Naval Biodynamics Laboratory, New Orleans, LA
NHRC	U.S. Naval Health Research Center, San Diego, CA
NMRI	U.S. Naval Medical Research Institute, Bethesda, MD
NCTS	U.S. Naval Computer and Telecommunication Station, NAS, Pensacola, FL

DOD

USUHS	Uniformed Services University of Health Sciences, Bethesda, MD
DNA	Defense Nuclear Agency, Alexandria, VA

Other Government

ARC	Addiction Research Center, National Institute on Drug Abuse, Baltimore, MD

Contractors.

HTI	Horizon Technologies, Inc., McLean, VA
MMS	Morgan Management Systems, Inc., Silver Spring, MD

1.2.2 **Program Projects.** The following projects were managed and coordinated by the OMPAT program, by the laboratories and over the fiscal years indicated:

SHORT TITLE	MIPR/ CONTRACT	LAB	FISCAL YEAR 90	91	92	93
AIR FORCE						
UTCPAB Normative DB	90MM0501	AAMRL	X	X		
Test Stand/Norm DB Survey	90MM0502	AFSAM	X	X	X	X
Man/Machine Modeling Tools	90MM0503	AFSAM	X	X	X	X
MicroSAINT Model/Fatigue	90MM0504	AFSAM	X	X	X	
ARMY						
Actigraf/Sleep Monitoring	91MM1505	WRAIR/ NHRC		X	X	X
OMPAT: Prog & Manage Supp	90C0061	WRAIR	X	X	X	X
NAVY						
Anal of Phase IV & V SUSOPS	90MM0524	NBDL	X	X		
MicroSAINT Models/ Sonar OPS	90MM0527	NHRC	X			
Perf Assess Methods Research	90MM0528	NAMRL	X	X		
MicroSAINT Models Of CIWS	90MM0526	NAMRL	X			
Modeling of Human Perf Assess	90MM0523	NAMRL	X	X		
NPPAB Methodologies	90MM0525	NMRI	X			
NPPE Develop for UTCPAB WS	91MM1504	NCTS		X	X	X
PIMS Communications	92MM2501	NCTS			X	X
DOD						
PEPAB Normative Development	90MM0531	USUHS	X	X		
Computer Aids/Perf Decre Pred	90MM0563	DNA	X	X	X	X
OTHER GOVERNMENT						
Performance Norms on NPPAB	90PP0807	ARC	X	X		

2.0 ADMINISTRATIVE SUPPORT OF PROGRAM MANAGEMENT.

2.1 **Operation of the OMPAT Office.** A Contractor Owned-Contractor Operated facility was located, leased and occupied by Morgan Management Systems, Inc. staff and designated as the OMPAT Field Office. The office was located at 12075B Tech Road, Silver Spring, MD, 20904. Morgan Management Systems, Inc. provided personnel, facilities, material and services for the operation of the OMPAT Field Office and performed contractual functions described in the Statement of Work. Operation of the Field Office included the general office functions of communications (electronic, telephonic, and written correspondence), equipment and material acquisition, development and maintenance of OMPAT operating files and OMPAT/JWGD3 historical files, and distribution of program technical and scientific reports. Details of these functions are described in the following paragraphs. Adjustments in the operation of the Field Office were made as increased requirements for personnel and equipment were identified as outlined in the listing of contract modifications below:

2.1.1 **Contract History and Modifications.** The contract period was 8 March 1990 through 7 March 1993. Modifications over the course of the contract reflect additional computer hardware requirements and upgrading and an additional task for editorial support.

MODIFICATION NUMBER	DATE	PURPOSE
P00001	10 Apr 1990	Increased incremental funding and changed funding period to 30 Nov 1990.
P00002	9 Jul 1990	Corrected addresses for reports.
P00003	9 Jul 1990	Increased funding for editorial support and additional computer and office equipment.
P10004	28 Nov 1990	Provided incremental funding for FY91.
P10005		Incremental funding to add hours for editorial support and to add a program manager for Operation Desert Shield Family Health and Performance Survey not approved by SBA.
P20005	31 Oct 1991	Provided incremental funding for FY92.
P20006	7 Jul 1992	Increased funding to provide system hardware and associated costs for a reliable backup system for the OMPAT Local Area Network.
P30007	4 Nov 1992	Provided incremental funding for FY93.

2.1.2 **Personnel and Positions Supported by the Contract.** The contract supported three full time positions and two part time positions. In addition, Modification No. P00003 provided for a subcontract for editorial support for the NCO Career History Project which was active for the period July 1990 through September 1991.

Personnel receiving contract support:

		%
Walter E. Morgan	Project Director	14.5
Marvin L. Fitts	Project Manager	100.0
Cynthia L. Kresslein	Exec Asst/System Manager	100.0*
Carolyn J. Dew	Secretary/Admin Asst	100.0**
Mollie Krueter	Secretary/Admin Asst	14.5

* This was a full time position through January 1993, at which point it became a part time (50%) position.
** This position was vacated on 26 December 1992 and not filled due to the short term left on the contract.

2.1.3 **Cost Performance.** The following summary provides comparative budget and cost data by cost element and costs by fiscal year. Upon approval of Modification P00001 fiscal year budgets and funding periods were established at 1 December through 30 November. Cost data are based on reimbursement requests through 15 March 1993 (Voucher #73).

COST ELEMENT	CONTRACT BUDGE	FY90 EXPEND	FY91 EXPEND	FY92 EXPEND	FY93 EXPEND	CONTRACT EXPEND	%/ BUD
Dir Labor	384,623	85,451	122,184	124,129	31,442	363,206	94.4
Fr Ben	111,541	24,781	35,433	35,997	9,118	105,330	94.4
Other Dir	250,137	113,139	56,349	77,290	24,044	270,821	108.3
Subcontrt	12,000	6,000	10,500	0	0	16,500	137.5
Overhead	363,984	110,098	107,744	113,960	31,010	362,812	99.7
Total Ex	1,122,285	339,469	332,210	351,376	95,614	1,118,669	99.7
Fee *	85,000	25,410	25,912	26,011	5,619	82,952	97.6
Total	1,207,285	364,879	358,123	377,387	101,233	1,201,621	99.5

* Fee charges withheld: $1,932.91

2.1.4 **Acquisition of Hardware/Software.** Hardware and software acquisition has been based on the SOW requirements to develop and maintain specialized microprocessor databasing systems for monitoring project and contract reports and research data, and to develop a Performance Information Management System (PIMS) for archiving, retrieving and disseminating technical and scientific

information for the OMPAT program. Hardware systems were restricted to IBM compatible Personal Computers, and software programs were limited to the evaluation and employment of commercially available application packages. This development effort also involved the evaluation and testing of new approaches to the archiving, retrieval and dissemination of technical and scientific information. Appendix B lists the hardware and software acquisitions under this contract which have been transferred to the custody of OMPAT, NP Division, Walter Reed Institute of Research.

2.2 **Office Management Tasks.** Effective office management operations were developed and implemented for the OMPAT Field Office. Specific procedures and controls were established to receive and distribute OMPAT correspondence, reports and software, to develop and distribute the OMPAT telephone directories and distribution lists, and to establish and maintain communications links with the Research Management Office, WRAIR, and USAMRDC offices necessary to effectively operate the OMPAT Field Office. Specific procedures were established for the following functions:

2.2.1 **Automated File Retrieval System.** An extensive filing system was developed to house OMPAT project, correspondence, budget and historical records. Using commercially available software, computer text files were created listing the hardcopy file folder tabs maintained in the OMPAT file cabinets, coded by file cabinet and cabinet drawer. Text files were indexed using ZY INDEX, a utility included in ZY Professional software. ZY Professional has a SEARCH utility which provides for key word searches to identify the contents and location of indexed files. Basic index system procedures included the following:

- ASCII text files were composed from the information on filefolder labels and subject-line key words;

- ZyINDEX performed one of three functions on the ASCII files.

  - Indexing: produced an index list with unique content words from indexed files, developed a list of files in which the unique words appear, recorded the location of each unique word within each recorded file;

  - Search: used the index list to find all files containing key words or phrases in a search request;

  - Utilities: maintenance options included listing indexed files, removing a file from the index list, changing configurations, moving the index list, altering indexed filenames, generating new index lists, and deleted existing index lists.

Although the search system required a great deal of maintenance (editing and reindexing), the effectiveness of the electronic search capabilities in locating files in the complex OMPAT filing system made that effort well worth the effort.

2.2.2 **OMPAT Calendar.** A calendar of OMPAT activities and events was posted in the front administrative office, which displayed four months at a glance and provided information for all meetings and appointments of the Director, OMPAT and other meetings scheduled at the OMPAT Field Office. When the calendar was cleared for new entries, a hard copy of existing data from past activities was permanently recorded in the Director's date book.

2.2.3 **OMPAT Correspondence.** A computer-aided log for incoming and outgoing mail was established and maintained using ZY Professional as discussed above. In addition, current distribution lists and mailing label data bases are maintained for use in the preparation and distribution of correspondence for the Director, OMPAT and the OMPAT Technical Advisory Group, as well as the sub-groups concerned with OMPAT activities (UTCPAB, AGARD STRES, Standards and BBS groups, etc.). Contract personnel also performed daily pick-up and delivery of mail at the WRAIR.

2.2.4 **Telecommunications.**

2.2.4.1 Voice. Contract administrators kept a complete incoming call log, and maintained telephone directories and Rolodexes for the OMPAT Field Office staff. An OMPAT Telephone Directory of participating investigators was published, maintained and distributed to member laboratories and offices. FAX transactions were considered to be calls, and they were logged in and out, and hard copies were maintained as an integral part of the filing system. Communications are recognized as an essential element of the OMPAT effort which required establishing and maintaining an efficient incoming message service.

2.2.4.2 OMPAT Bulletin Board System (BBS). The OMPAT BBS, which operates on MAILNET software, was installed as the major communications link between OMPAT principal investigators, laboratories and the OMPAT Field Office. A contract administrator served as the Systems Operator (SYSOP) whose functions included monitoring the BBS, providing technical assistance to the system's users, and maintaining system functionality. The BBS consisted of two network nodes, two 9600 baud modems, an 800 line to service the intercontinental U.S., and a standard long-distance line. Currently, the following four user boards make up the BBS: Main, Testing Applications, Synthetic Work Methods, and Network Modeling. BBS members used the four boards to share data, transfer files, and as an electronic forum to discuss scientific and technical issues related to OMPAT performance testing, modeling, and risk assessment. The OMPAT BBS will continue operation in the OMPAT, NP Division, WRAIR. Approximately 400 members, which represent a wide

professional spectrum, are currently using the OMPAT BBS, with new members signing on daily. Utilization of the OMPAT BBS was recorded with monthly reports generated by the system. Records included a Call-Log Report, File-Log Report, and statistical reports on usage by BBS node, baud rate and hour of day. The following data is from the final report generated by OMPAT Mailnet Utility Software:

Number of registered users:	400
Average number of calls per year:	6250
Average duration of calls in minutes:	10

2.2.4.3 OMPAT FAX. A QUADRAM Facsimile Board was initially installed in a PC workstation on the Local Area Network (LAN), which proved to be ineffective. The faxing function was extremely slow and the process tied up the printer and slowed the file server and consequently all workstations on the LAN. A Panasonic Panafax UF-300 plain paper, inkjet facsimile was purchased to perform the fax function independent of the LAN, communications workstation and the printer. The FAX had the capacity to be programmed for one-touch dialing to appropriate WRAIR and USAMRDC offices and all OMPAT participating laboratories.

2.2.5 **Local Area Network (LAN).** A 13-node LAN, running 10-Net 5.0, was purchased and installed in the OMPAT Field Office. Office nodes were networked via two files servers, coaxial cable and Western-Digital Ethernet Cards. The LAN joined five 486's, five 386's, and three 286's, two HP LaserJet monochrome printers, one HP DeskJet 500C color printer, and an HP Digital Text/Graphics Scanner. As with the BBS, the contract provided for a Systems Manager whose functions included maintaining the LAN, installing and monitoring software and hardware, and system troubleshooting. Other functions in developing the LAN included the following:

2.2.5.1 Management of Program and File Discipline. OMPAT data and program files, commercially available software programs, Mailnet BBS files, and assorted miscellaneous files were stored on the OMPAT LAN. After the software was installed on the LAN, original program diskettes were entered in an OMPAT inventory system and stored in a software library. A labeling data base was designed to provide OMPAT labels for distribution of program software products. System programs and files were reviewed quarterly for the purpose of purging the system of obsolete files, archiving outdated programs, and generally cleaning up old files/directories to keep the system drives orderly. Software programs were upgraded as upgrades were received.

2.2.5.2 System Backup. Sytos Plus backup software was installed and utilized to backup data on a weekly and/or daily basis to create a tape archive of data from the fileserver, bulletin board system, and individual user volumes. Sytos was

programmed to run automatically, so backups could be performed outside regular working hours. A problem in the backup operation did arise in May 1992 which proved to be a combination of inadequacies in the fileservers and the backup system. The problem was corrected with the installation of a 2 Gbyte Internal Backup System which permitted the fileservers to be backed up nightly and permitted more frequent maintenance of file server disk surfaces.

2.2.5.3 System Security. System Security was only an issue where the OMPAT BBS was involved. To access the BBS, each user was assigned a unique password, and to obtain that password, users had to provide their full name, affiliation, and telephone numbers via a telephone or written correspondence to the SYSOP. The BBS Mailnet software was designed and programmed to lock users out of the LAN, and hold them in the subdirectories containing BBS user files.

2.2.6 **Administration of Application Software.** Application software was purchased, installed, updated and changed by the contractor as required. After installing software on the LAN, original software diskettes are registered, entered into the OMPAT inventory system and archived in the application software library. Inventories of software and hardware provided by this contract are attached as Appendix B. Hardware and software inventories were transferred to the OMPAT, NP Division, WRAIR upon termination of this contract.

2.3 **Administration of Contract and Military Interdepartmental Purchase Request (MIPR) Program Elements**. OMPAT program planning, directed by the USAMRDC Medical Chemical Defense Research Program (Research Area Director V) through the Director, NP Division, WRAIR, was performed on an annual cycle in response to procedural guidelines received from USAMRDC. The initial OMPAT program elements consisted of thirteen MIPR, one contract, and no Command Operating Budget (COB) elements. The OMPAT annual planning process generally included:

- Program review by the OMPAT program membership at Executive and Task Area meetings, which consisted of the review and evaluation of projects and contracts supported by the program.

- Development of program recommendations based on decisions arrived at in the program review and projected funding levels provided by USAMRDC/RAD V.

- Presentation of program recommendations by the Director, OMPAT at the Review and Analysis of WRAIR/USAMRDC programs.

- Adjustment of program recommendations based on availability of resources as determined by USAMRDC/WRAIR.

OMPAT documentation related to program recommendations was developed under the direction and participation of the Director, OMPAT.

2.3.1 **Preparation of Program Documents.** The OMPAT Field Office developed the program planning and budget documents associated with the planning process outlined above. Program project databases and spreadsheets were developed and utilized for reports and document preparation. Program documents relating to individual projects and contracts were routinely coordinated with principal investigators and Task Area managers. Review and Analysis (R&A) documentation submitted by participating laboratories were edited, formatted, and summarized for the FY91 and FY92 R&A Report. The document was used in the preparation of slides for the R&A presentation for both years. In addition, Harvard Graphics multiple charts were prepared for the FY92 OMPAT projects. In addition to the annual planning documentation, MMS staff participated in the preparation of planning material for special meetings and for presentations by the Director to WRAIR, USAMRDC and other government offices. Documentation and materials included hardcopy and computer text and graphics, overheads and slides. Program development and coordination was a continuing process accomplished through periodic and special meetings, telecommunications, and the OMPAT BBS with participating laboratories on individual projects.

2.3.2 **Project Funding Documents.** Program funding documentation was initiated and developed annually for the OMPAT program projects and contracts under the direction of the Director, OMPAT, and submitted to USAMRDC, SGRD-PLE (RAD V) through the NP Division, WRAIR for review. Funding documents included the USAMRDC Form 9, Recommendation For Support of Research and Development Project, and DD Form 1498, Research and Technology Work Unit Summary, and both were prepared on each proposed project or contract. These documents were submitted each year the project was active to recommend fiscal year funding, and they were submitted as required to recommend modifications in funding, period of the project or change in protocol, and upon completion of the project. Funding documents were prepared for thirteen extramural program elements for FY1991, eight for FY1992, and seven for FY1993. Project databases and spreadsheets were sources for program planning documents discussed above. In addition to the databases and spreadsheets, hardcopy project folders were maintained as repositories for project related documents, including the initial proposal, funding recommendations and documents, scientific and technical reports, and correspondence. In addition to initiating, coordinating, and maintaining contract and MIPR documentation, assistance in processing requests for testing human subjects was provided in the form of tracking the request and providing liaison between the principal investigator and the USAMRDC Human Use Review Office.

2.3.3 **Monitoring Program Element Deliverables.** Procedures for monitoring contract and MIPR program element deliverables were developed and implemented. Quarterly, Annual and Final Reports for projects completed back to FY89 were monitored and reporting requirements were reinforced through direct communication with principal investigators. In addition, a Reports Summary listing Quarterly, Annual and Final Reports due was published quarterly. Hardcopy reports received were logged, reproduced and distributed, and archived in appropriate project files and the PIMS.

3.0 **ADMINISTRATIVE SUPPORT OF PIMS.** The performance Information Management System (PIMS) is designed primarily for archiving technical and scientific data produced by the JWGD3 and OMPAT programs in a way which will allow for varied levels of interaction between the user and the system. Current optical disk technology provides the means for storing all data sets generated in the program and related programs. It also provides the means of storing the programs that generated the data sets, research notes, reports, publications, commentaries and reviews that make the data scientifically meaningful. Data is stored in a multiform database which is nonvolatile and massive (800 MBytes per WORM [Write-Once-Read-Many times] disk). The PIMS has the capability to scan hardcopy documents for electronic storage as well as converting software data to formats acceptable for storage. The system uses an artificial intelligence, natural language programming system for interaction between the user and the system and a large capacity, sophisticated database management system for retrieval and dissemination of data. The PIMS is the primary interface with the product end users which currently consists of the Joint Services, civilian agencies, NATO and other allies, and universities. The PIMS has the capacity to serve as the time-binding archive capable of insuring that information and knowledge generated in DOD performance assessment research is protected, distributed and exploited. The PIMS and associated databases were transferred to the OMPAT, NP Division, WRAIR at the conclusion of this contract.

3.1 <u>Data and Text Entry</u>. Contract, efforts focused on scanning, editing and entering JWGD3 MILPERF and OMPAT quarterly, annual, and final reports as well as technical reports into PIMS. Procedures for data entry included converting text and graphic reports to ASCII files, editing, and formatting prior to transferring the data to the PIMS. A Hewlett Packard text scanner was used to convert hardcopy reports.
PIMS uses HYNET LAN and HYNET LAN Utilities as the program operating system. HYNET provides a fast and effective means of accessing over 500 technical files currently in the PIMS database using key-word jump files.

3.2 **Literature Search Services**. Accounts for on-line literature search capabilities were obtained through the National Library of Medicine's MEDLAR system, and the BRS Colleague system. The necessary software was ordered and installed, and an existing communications server was programmed to automatically dial both search services. The NLM MEDLAR system had few psychological references, so literature searches were primarily performed using BRS Colleague Information Management Service for Health Care Professionals. Searches conducted are listed in past quarterly and annual reports. The following are examples of searches performed for the Director, OMPAT during FY93:

-Speech,
-Speech Patterns,
-Speech and Timing,
-Speech and Rhythm.

The Speech searches produced 468 hits, and the Director, OMPAT ordered nine reprinted articles.

-Bootstrapping,
-Diphenhydramine and Bioassay,
-Diphenhydramine and Sedatives,
-Diphenhydramine and Pharmacokinetics.

From the Bootstrapping and Diphenhydramine references compiled in this search, a bibliography was developed and placed on the OMPAT BBS for download.

3.3 **Editorial Support**.

3.3.1 **NCO Career History Project.** Modification P00003 provided resources to support this project for abstracting, data analysis, and editing of NCO histories to describe the state of morale and discipline in the Army following Vietnam. The project was conducted by subcontract (Linspar Associates, Inc.) and was completed 30 September 1991. The following summarizes activities for the project:

Project Overview. This project involved abstracting, data analysis, and editing of 20 NCO career histories, totaling approximately 6,000 single-spaced pages of career history narrative. The project was modified over the course of the contract to allow for all available data to be utilized. Thus, the final project involved 20 histories, rather than the 6 or 7 originally contracted. The project involved two major efforts prior to the evaluation and implementation of the computer sorts: (1) preparing the data for sorting (the editing and abstracting processes); and (2) mastering the sort and retrieval software routines. Linspar Associates was responsible for locating, converting, cleaning, abstracting, and editing the manuscripts. COL L. H. Ingraham, Department of Military Psychiatry, WRAIR

mastered the sort and retrieval software routines, and accomplished the majority of the data analysis (the computer sorts).

Preparing data for sorting/analysis (editing and abstracting). As of 30 September 1991, all 20 transcriptions had been located, converted into the common code environment, cleaned, and delivered to COL Ingraham. Of the 20 transcripts located and converted into the common code environment, 16 transcripts were also cleaned to break the extremely long paragraphs created by the transcription process. This pass could not be assigned a computer routine and had to be done manually. The remaining four transcripts had the paragraph breaks accomplished as part of the overall transcription cleaning.

Development, evaluation, and implementation of the computer sort routines. Testing of the three sort and retrieval programs developed under this project was completed. COL Ingraham has evaluated the primary software. In addition, this effort developed a text outline procedure using the sort software to link the sorts to the outline. This feature of the software allows the operator to "fill-in" the substance of the outline as the computer hits are generated. This process has provided a rudimentary outline and time line for completion of a manuscript.

4.0 **TECHNOLOGY TRANSFER DATABASE.** Formal and informal dissemination of OMPAT program products and performance methodologies was encouraged as basic policy. The Technology Transfer Database was developed to provide a system for tracking the transfer of data and methodologies produced by the program. The database is maintained from information provided by principal investigators on the Information Dissemination or Technology Transfer Report. The database is maintained on Q&A software to facilitate queries and reports development. Procedures for operating this reporting system were developed by the OMPAT Field Office and distributed to principal investigators and participating laboratories. Technology transfer activity was routinely reported as an appendix to the MMS quarterly report in the Performance Information Management System Quarterly Status Report and the report for the past year is included in Appendix A. Database entries included the following details for each transaction:

-Date of transaction,
-Product/article received or sent,
-Person requesting action,
-Person receiving product/article,
-Affiliation, address, and telephone number of recipient.

5.0 **OMPAT PRODUCT ARCHIVE.** Products of the OMPAT program included software, hardware, reports and publications. Products from OMPAT program elements were monitored, archived, entered into the PIMS when appropriate, and distributed upon request from inside and outside the program. As discussed in section 4.0 above, OMPAT

Products received in the OMPAT Field Office were reported in the Quarterly PIMS Status Report. Both hard copy and ASCII computer files were maintained for distribution and archiving of reports, publications and software.
All products were tracked using the Q&A database mentioned in the preceding section. Products were archived in the optical disc system, and an active Bibliography is maintained in the OMPAT LAN system, both of which have been transferred to the OMPAT, NP Division, WRAIR.

5.1 **OMPAT Software**. The OMPAT Field Office staff distributed OMPAT software and manuals via general mail and the OMPAT BBS. Software was distributed to participating laboratories as well as non-member investigators and organizations, as instructed by the Director and Deputy Director, OMPAT. OMPAT software upgrades were distributed using the Technical Transfer Database to track users and their current versions of the software. OMPAT software routinely distributed through the field office included:

- Complex Cognitive Performance Assessment Battery (CCAB)
- Walter Reed Performance Assessment Battery (WRPAB)
- Unified Tri-Service Performance Assessment Battery (UTC-PAB)
- NATO AGARD/STRES Battery
- STRESR Battery
- Synthetic Work Software (SYNWORK)
- ANAM test battery.

5.2 **Other Database Development, Technical Information Acquisition, Archiving, and Distribution**. Databasing systems were developed and maintained specifically to monitor OMPAT project and contract reports and collect other research data and performance assessment systems developed by the program. Data basing systems described below, software, procedural manuals, and hardcopy reports have been transferred to OMPAT, NP Division, WRAIR. Software acquisitions are listed in Appendix B.

5.2.1 **Project Reports Database**. OMPAT projects and contracts were required to submit quarterly, annual and-final reports, as well as specific hardware, software and systems deliverables. A Project Reports Database was developed to assist in tracking reports and other deliverables which were the source for the quarterly Reports Due Summary distributed quarterly. Reports received at the OMPAT Field Office were entered in the database and copies were made for internal review and distribution to RAD V and other USAMRDC offices, participating laboratories, and program principal investigators as part of the PIMS Quarterly Status Report.

5.2.2 **Membership Database**. The Membership Database was developed to house information on OMPAT/JWGD3 MILPERF membership, program managers, principal investigators, participating laboratories, and program contractors. The database was used to

develop the OMPAT telephone directory, distribution lists, and mailing labels. The database was maintained and changes, additions, and deletions entered as they occurred. Updated corrections to the telephone directory were mailed to the full OMPAT distribution every six months.

NOTE: Quarterly systems status report: Data related to the PIMS database, the Technology Transfer Database and the OMPAT Product Archive are contained in the consolidated PIMS Status Report, Appendix A.

6.0 **MANAGEMENT OF MEETINGS.** The OMPAT Field Office planned OMPAT meetings and provided administrative support as required. Meeting support included the negotiation of meeting space and overnight accommodations, travel arrangements for the Director and Deputy Director, OMPAT, audio/visual equipment, etc. Meetings for which the OMPAT Field Office provided support are listed in the appropriate quarterly and annual reports. Meetings supported during the final year of the contract are listed below:

27 Apr 92	Mailnet Communications Center Development Meeting, OMPAT Field Office. F. Hegge, WRAIR; K. Winter, NCTS; Sam LaCour, NCTS; Gary Osmolski, NCTS.
10 May 92	Modelling Bulletin Board Organizational Meeting, OMPAT Field Office. F. Hegge, WRAIR; R. Laughery, Micro Analysis and Design.
15 Jun 92	Horizon Technology SYNTAS In Process Review, OMPAT Field Office. F. Hegge, WRAIR; J. Marshall-Mies, HTI; F. Gray, HTI; Bob Young, HTI; R. Kehlet, DNA; J. Chubb, Ohio State Univ.
06 Jul 92	SYNTAS Meeting, OMPAT Field Office. F. Hegge, WRAIR; J. Marshall-Mies, HTI; F. Gray, HTI; T. Olmstead, HTI.
27 Jul 92	SYNTAS Meeting, OMPAT Field Office. F. Hegge, WRAIR; J. Marshall-Mies, HTI; F. Gray, HTI.
15-17 Aug 92	American Psychological Association Meeting, Aberdeen Proving Grounds, MD. F. Hegge, WRAIR; T. Elsmore, WRAIR; D. Reeves, NMHC.
13-15 Jan 93	SYNTAS Working Group Meeting, OMPAT Field Office. F. Hegge, WRAIR; J. Marshall-Mies, HTI; F. Gray, HTI; B. Young, HTI; T. Elsmore, WRAIR; S. Schiflett, Brooks AFB; D. Eddy, Brooks AFB; G. Kay, Georgetown Hosp.; D. Thorne, WRAIR; R. Kane, Baltimore VA; J. Wood, Krug Life Sci.; C. Oles, HTI; M. Gianturcco, HTI.

18 Feb 93 Horizon Technology SYNTAS In Process Review, OMPAT Field Office. F. Hegge, WRAIR; F. Gray, HTI; J. Marshall-Mies, HTI; Carol Oles, HTI; M. Gianturcco, HTI; R. Kehlet, DNA.

7.0 SUMMARY AND CONCLUSIONS.

This contract provided program and management support to the Office of Military Performance Assessment Technology which ranged from operating administrative functions of the OMPAT Field Office to participating in the development of and maintaining the OMPAT LAN, the Bulletin Board, and PIMS, and initiating and maintaining documentation and monitoring of OMPAT program projects and cpntracts. Working closely with the Director and Deputy Director, OMPAT, the contract staff became an integral part of the management team that has successfully promoted an effective and productive working group of military and scientific experts in performance and risk assessment in multiple threat environments. The OMPAT program has successfully developed a set of broadly accepted human performance assessment technologies which have the potential of becoming a standardized performance assessment system. While the program was focused on predicting military performance and risk assessment under conditions of situational and environmental stress, the technologies developed by the program have much broader, more universal applications. This effort will be further developed with the continued operation of the Office of Military Performance Assessment Technology in the Department of Military Psychiatry, Division of Neuropsychiatry, WRAIR. Computer hardware and software, the OMPAT LAN, BBS and Database systems, as well as hardcopy files and furniture, procured and developed under this contract have been transferred to the OMPAT, WRAIR.

DISTRIBUTION LIST

Commander
U.S. Army Medical Research and Development Command
ATTN: SGRD-RMI-S
Fort Detrick
Frederick, MD 21702-5012
(5 copies)

Director
Office of Military Performance Assessment Technology
Division of Neuropsychiatry
WRAIR
Washington, DC 20307-5100

PERFORMANCE INFORMATION MANAGEMENT SYSTEM (PIMS)

A. PIMS CENTRAL REPOSITORY

DATA AND TEXT ENTRY:

Hynet software, produced by Neil Larson, Assoc., was chosen by the Director, OMPAT for the creation of a hyper-text information retrieval system for PIMS. The administrative staff scanned and edited over three-hundred JWGD3 MILPERF and OMPAT quarterly, annual and final reports. Once the reports were in the proper format, they were added to the PIMS hyper-text system for on-line access.

B. TECHNOLOGY TRANSFER DATABASE

DISTRIBUTION IN RESPONSE TO QUERIES:

TECHNOLOGY DESCRIPTION	# DISTRIBUTED
A Synthetic Work Environment for PC Compatible Microcomputers. Dr. Timothy Elsmore, WRAIR	12
MicroSAINT Software and Documentation	3
Complex Cognitive Assessment Performance Assessment Battery (CCAB)	1
The UTC-PAB/NATO AGARD STRES Battery	18
STRESR10 Software and manual	90
WRAIR Performance Assessment Battery and documentation	5
Terfenadine (Seldane) Reference List	1
Montgomery, L. and P. Deuster. "Acute antihistamine ingestion does not affect muscle strength and endurance, running head, antihistamine ingestion, and muscle strength and endurance." No date.	1
Systems Research Lab. "Comparative effects of antihistamines on aircrews under sustained operations.	1

Henningfield, J.E. "NIDA intramural program for Level I and II screening of pretreatment drugs" Final Report #84PP4853. 1

Schrot, J. "Development and evaluation of a human performance assessment battery." Final Report 84PP4806 1

McMenemy, D. and W. Tharion. View graphs entitled "Effect of two different antihistamines on central nervous system function." 1

Molina, E. "Continued performance assessment methodology (PAM) research (VORPET)." Annual report 90MM0528. 1

Deuster, P.A. "Exercise testing and physical activity appraisal." Annual report #90MM0531 (1990-1991) 1

Schiflett, S.G. "Integration & verification of man-machine interface systems." Annual report 90MM0503. 1991 1

Schiflett, S.G., Eddy, D., and M. Dalrymple. "Aircrew evaluation sustained operations performance (AESOP): a tri-service facility for technology transition." Draft technical report. December 1990. 1

Strome, D. "Comparative effects of antihistamines on aircrews under sustained operations." Interim report on research and development for contract #F33615-87-D-0601. 1

Fitts, M.L. "Program and management support for the Office of Military Performance Assessment Technology. Annual report DAMD17-90-C-0061. 2

Schrot, J. and J. Thomas. "NMRI Performance Assessment Battery Technical Report. 1

Englund, C.E., Reeves, D.L., et al. " Unified Tri-service Cognitive Performance Assessment Battery (UTC-PAB) 1. Design and Specification of the Battery. TR 87-10 4

Reeves, D.L., et al. " Unified Tri-service Cognitive Performance Assessment Battery (UTC-PAB) II. Software and Hardware Specification. 3

Perez, W. et al. "UTC-PAB Review and Methodology." March 1987. 3

Salme, Pierre. "The AGARD Grammatical Reasoning task: A Defect and Proposed Solutions." Laboratoire de Physiologie et de Psychologie Environmentales. 3

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Schlegel, R.E., Gilliland, K. "Development of the UTC-PAB Normative Database." University Of Oklahoma, May 1992. Final report. 4

U.S. Army Research Inst. of Environmental Medicine. "Effects of Hot and Cold Environments on Military Performance." 1

U.S. Army Research Inst. of Environmental Medicine. "Proceeding of a Symposium: Consequences of Wearing the Chemical Protective Ensemble: Illustrative Assessment Approaches." 1

Hegge, F. "Synthetic Work Environments for Cognitive Research in Man/Machine Systems." Presentation for the CIA Cognitive Event-Related Potentials Workshop: Assessment of Current Research and Prospects for Applications. July 23, 24, 1992. 10

Hegge, F. "The Synthetic Work Approach to Performance Testing." 1

Quarterly Distribution of quarterly, annual, and final reports to OMPAT distribution list. 3

AGARD AMP Working Group 12 & AGARD Lecture Series 163 Human Performance Assessment Methods. May 1989 3

Hegge, F. "Modeling Real-World Performance: Performance Risk Analysis" November 1990. 3

Hegge, F. "Contributions of the U.S. Army to Psychological Technology and Methodology. 2

Montgomery, L., Kyle, S., Smoak, B., and P. Deuster. "Performance Phy. Assessment Battery. JWGD3 MILPERF/USUHS report #89-1. 1989. 1

Reeves, D., Thorne, D., Winter, K., and Hegge, F. "CPAB II: Hardware/Software. Design & Specifications. 1989. 1

Elsmore, T. Naitoh, P., and S. Linnville. "Performance Assessment in Sustained Operations using a Computer-Based Synthetic Work Task." 2

Schlegal, R. and K. Gilliland. "Development of the UTC-PAB Normative Database" Final Report Univ. of OK. May 1992. 5

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Hegge, F. "The Performance Assessment System" OMPAT No date. 3

Hegge, F. "Fundamental Structures in Sequential Network Analysis with applications to Performance-Based Risk Analysis: A tutorial." September 1990. 1

Hegge, F. "Indexed bibliography for sleep and the soldier: a work in preparation." March 1984. 1

Williams, H.L. "Sleep bibliography." 1

Loveland, T. " Adding, sleep loss, and body temperature." Printed in Perceptual and Motor Skills, 1963, 16, 923-929. 1

Schlegel, R. and K. Gilliland. "Evaluation of criterion task set - Part 1: Appendices A and B - Univariate summaries (u)." January 1990. Final report May 1988-May 1989. 2

Schlegel, R. and K. Gilliland. "Evaluation of criterion task set - Part 1: CTS Performance and SWAT Data - Baseline conditions (u)." January 1990. 2

Syntas version .55 Draft designer's guide. 1

Scheving, L.E., Halbert, F., and C. Ehret. "Chronobio-technology and chronobiological engineering" No date. 1

Stanny, R.R. "Effects of sustained performance on cognition and Event Related potentials." 1

APPENDIX A

C. OMPAT PRODUCT ARCHIVE

OMPAT Reports listed below are routinely distributed to OMPAT program participants.

Reports and Reprints Received

PRINCIPAL INVEST.	LAB	TITLE	PROJ NO.	REPORT TYPE
Elsmore, T.F.	NHRC	A Comparison of Polygraphic and Actigraphic Monitoring of Sleep Using a 5-Channel Programmable-Sensitivity Actigraph.	91MM1505	Qtrly/ Annual
Fitts, M.L. Qtrly	MMS	Program and Management Support for the Office of Military Performance Assessment Technology.	90C0061	
Marshall-Mies	HTI	Risk Assessment Tools for Human Performance Decrement Prediction in Multiple Threat.		Qtrly
Molina, E.	NAMRL	Field-trial Validation of the JWGD3 MILPERF-NAMRL Multidisciplinary Performance Test Battery.	84MM4503	Final
Schelegel, R.	U of OK	Development of the UTC-PAB Normative database.	92MM2501	Final
Winter, K.	NCTS	Performance Information Management Systems (PIMS)	92MM2501	Qrtly/ Annual
Winter, K.	NCTS	Development of the OMPAT Neuropsychological/Psychomotor Performance Evaluation and OMPAT Data and Timing Support Programs.	92MM1504	Qrtly/ Annual

Other Papers, Books and Technical Reports Received

Banderet, L., Blewett, W. Gonzalez, R., Johnson, R., et al. "Proceeding of a Symposium -- Consequences of Wearing the Chemical Protective Ensemble: Illustrative Assessment Approaches." U.S. Army Institute of Environmental Medicine. TR#9-92, March 1992.

Betrand, O., Bohorquez, H. and J. Pernier. "A reversible discrete wavelet transform: Application to the filtering of transient electrical brain signals." Paper. No date

Bierbaum, C.R. and T.B.Aldrich. "Task Analysis of the CH-47D Mission and Decision Rules for Developing a CH-47D Workload Prediction Model. Vol 1: Summary Report. TR #AD-A221-969. Anacapa Sciences, Inc. Aviation R&D Activity at Fort Rucker, Al. Systems Research Lab. USARIBSS. February 1992.

Brooks, R.B., Hubbard, D.C., Schiflett, S.G, Woodruff, R.R., and A. E. Harriman. "Effects of pyridostigmine bromide on A-10 pilots during execution of a simulated mission: performance." Tr# AL-TR 1992-0005. May 1992.

Card, S.K., Moran, T., and A. Newel. "The psychology of human-computer interaction." 1983

Chubb, G. "Sequential network modeling (SNM) for performance risk assessment (PRA).

Conroy, J. "Soldiers' Psychological Responses to Tactical Nuclear Warfare." Technical Report for DNA-TR-90-112. SAIC. February 1992.

Dalrymple, M.A. "Evaluating airborne warning and control system strategy and tactics as they relate to simulated mission events." Tr # AL-TP-1001-0049. November 1991.

Eckerman, D. , "A meta-analytic approach to extrapolating animal performance data to soldier performance." Contract #DAALO3-86-D-0001. Final Report.

Eckerman, D. "Neurobehavioral Toxicology of Learning and Memory: Environmental Determinants: Cross-Species Extrapolation in the Assessment of Neurotoxicity." University of North Carolina at Chapel Hill. Dated August 1992.

Eddy, D.R., Dalrymple, M.A., and S.G. Schiflett. "Comparative effects of antihistamines on aircrew mission effectiveness under sustained operations." TR # AL-TR-1992-0018. June 1992.

Elsmore, T.F. "Performance Assessment in Sustained Operations Using a Computer-based Synthetic Work Task." DRAFT not for citation.

Elsmore, T., Hegge, F., Naitoh, P., Kelly, R., Schlangen, K. and S. Gomez. "Performance Assessment in the Laboratory: A Comparison of Synthetic Work and Selected Measures from a Conventional Performance Assessment Battery." Draft.

Gamache, G.L. and A.S. Glickman. "The Effect of Pain on Task Performance A Review of the Literature." Technico Southwest, Inc. Technical Report: July 1992.

Gilbicka, G., Kautz, M. and Z. Ritch. "Reinforcement loss and behavioral tolerance to d-amphetamine: Using percentile schedules to control reinforcement density." #238.

Hegge, F. and C.F. Tyner. "Deployment threats to rapid deployment forces." 1982.

Hegge, F. "The future battlefield: human dimensions and implications for doctrine and research." 1982

Kane, R. and G. Kay. "Neuropsychology Review." Plenum Press, Volume 3, Number 1. March 1992.

Kaul, Dean, C., et al "The Development and Testing of the Transport of Radiation Code Version 6 (ATR6). Technical Report #DNA TR 91 237 from the Defense Nuclear Agency.

Kaul, D.C., McGuffin, S., Dolatshahi, F., "User's Manual Personal Computer PC Edition Version 6 of ATR (ATR6). Technical Report. DNA-TR-91-163. Science Applications International Corporation. April 1992.

Kim, J.H. and J. Stinger. "Applied chaos." Wiley Interscience Publication. 1992.

Kobrick, J.L., Johnson, R.F. "Effects of Hot and Cold Environments on Military Performance." U.S. Army Research Institute of Environmental Medicine, Natick, MA. T7-92, March 1992.

Korn, G.A. "Neural network experiments on personal computers and workstations." 1991. With diskette.

Kosko, B. "Neural networks and fuzzy systems: a dynamical systems approach to machine intelligence." 1992. With diskette.

McClellan, G.E., Hemmer, T.H., and R. DeWitt. "Chernobyl Doses. Vol 2-Conifer Stress Near Chernobyl Derived from Landsat Imagery." December 1992. DNA-TR-92-37-V2.

Moon. F. "Chaotic and fractal dynamics: an introduction for applied scientists and engineers. 1992.

Morrison, T., Wegg, LT, and R. Wildzunas. "The effects of fatigue on 41-ft utility boat crewmembers. Dated May 1991. Naval Biodynamics Laboratory.

Nesthus, T.E., Schiflett, S.G., Eddy, D.R., and J.N. Whitmore. "Comparative effects of antihistamines on aircrew performance on simple and complex tasks under sustained operations." Tr# AL-TR-1991-0104. December 1991.

O'Donnell, R., Hegge, F. and W. Storm. "Ergonomic assessment in complex systems: some research implications of the paradigm shift." Paper.

Oles, C., Marshall-Mies, J., Gray, F., Grage, D. Synthetic Task Authoring System (SYNTAS) Version 0.5. Draft Designers guide and software. Defense Nuclear Agency, Horizon Technology, Inc.

Oliver, M.A. "Army Pulse Radiation Facility (ARPF) Gamma Dose Measurements 400-Meter Phantom. U.S. Army Combat Systems Test Activity, Defense Nuclear Agency. #DNA-TR-92-27. Feb 1993.

Painter, E.L., and F.W. Whicker. "Chernobyl doses: Vol 3-habitat and vegetation near the Chernobyl nuclear reactor station." Defense nuclear agency. TR #DB4NAr-92-37-V3. Jan 1993.

Putnman, L.H., and W. Myers. "Measures for Excellence: Reliable Software on Time, Within Budget." 1992.

Robert J.A., et al. "Delfic fallout prediction code radiation physics package upgrade." Technical Report SAIC. Contract no. Dna 001-88-C-0197. October 1992

Ryman, D.H., Biersner, R.J., and LaRocco, J.M. " Reliabilities and Validities of the Mood Questionnaire." Psychological Report, Vol 35, Pg 479-84, 1974.

Salame, Pierre. "The AGARD Grammatical Reasoning task: A Defect and Proposed Solutions." Laboratoire de Physiologie et de Psychologie Environmentales. May 24, 1992.

Schank, R. and R. Abelson. "Scripts plans goals and understanding: an inquiry into human knowledge structures." 1977.

Schlegel, R.E., Gilliland, K. "Development of the UTC-PAB Normative Database." University Of Oklahoma, May 1992.
FINAL REPORT Submitted to the Southeastern Center for Electrical Engineering Education (SCEEE), Armstrong Laboratory and the OMPAT Field Office.

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Senders, J. and Moray, N. "Human error: cause, prediction and reduction." 1991.

Shlaer, S., and S. Mellor. "Object-Oriented Systems Analysis: Modeling the World in Data." 1988.

Shlaer, S. and S. Mellor. "Object Life Cycles: Modeling the World in States." 1992.

Tharion, W.J., Santee, W.R., and R.F. Wallace. "The Influence of heart rate, rectal temperature and arm-hand steadiness on rifle marksmanship during and after field marching in MOPP 0 and MOPP I. U.S. Army Research Institute of Environmental Medicine. Natick, MA. #T14-92. August 1992.

Wallace, R. and W. Halverson. "Project Management: A Critical Success Factor or a Management Fad." Industrial Engineering. Vol 24(4), pg 48-50. April 1992.

Wolf, J. Jay. "Man-machine simulation: models, psychosocial, and performance interaction."

Wood, J., Reeves, D., Wedding, D., Hegge, F., and T. Elmsore. "An instrument for medical assessment of neuro-cognitive status of impairment on long-duration space missions."

Proceedings of a Conference held at Walter Reed Army Medical Center November 1990. TITLE: The Effects of HIV on Military Performance: Assessment Methodologies. Robert L. Mapou, Henry Jackson Foundation.

Draft of HTI Report #419-TR-008 entitled "The AQUAFHL Program Questionnaire and Raw Data" developed by Pacific Sierra Research Corporation under DNA/OMPAT RAT Contract #DNA001-90-C-0118.

HARDWARE INVENTORY AND SOFTWARE ARCHIVE

Contract DAMD17-90-C-0061
OMPAT Field Office

1. The following Hardware and Software purchased under the contract was transferred to the OMPAT, Department of Military Psychiatry, Division of Psychiatry, Walter Reed Army Institute of Research.

HARDWARE

Description, Serial #, and Vendor.

Network Node 1:
486 Gen 5 Processor - MMSC002
Keyboard - #C921915556
Monitor/AMDEK - #25019B00124
5-1/4 and 3-1/5 hd Drives

Network Node 2:
486 Gen 5 Processor - #049386SX031
Keyboard - #C921915562
Monitor/PREMIER - #MDEM909100426
Modem/HAYES - #A01720003350
3-1/2 DISK DRIVE

Network Node 3:
486 Gen 5 Processor - 2CSS100125
Keyboard - #K89098539
Monitor/SAMSUNG - (AMBER)N
Modem/HAYES - #A00520003755
5-1/4 DISK DRIVE

Network Node 4:
286 Gen 5 Processor - #2C5100129
Keyboard - #085409
Monitor/LEADING EDGE - #003249
5-1/4, and a TAPE DRIVE

Network Node 5:
286 Gen 5 Processor - #2CS5100129
Keyboard - #K89070744
Monitor/TVM - #92476235
Modem/PM14400FXSA V.32 bis
2 5-1/4 DISK DRIVES

Network Node 6:
386 Gen 5 Processor -MMSC001
Keyboard - #K890704742
Monitor/Leading Edge - #003461
5-1/4 and 3-1/2 DISK DRIVES
Worm Optical Drive: #AA08909 (STORAGE DIMENSIONS LASER STOR OPTICAL SUBSYSTEM)

Network Node 7:
386 Gen 5 Processor - #049386SX028
8 MEGS RAM
Keyboard - #C923582869
Monitor/NEC - #79C04603J
Deluxe copy board/floppy disk enhancer
5-1/4 AND 3-1/2

Network Node 8:
386 Gen 5 Processor - #049386SX029
8 Megs RAM
Keyboard - #89098538
Monitor/NEC - #72C09321C
5-1/4 and 3-1/2 HD Drives

Network Node 9:
386 Gen 5 Processor - #059386SX044
8 Megss RAM
Keyboard - #0024059
Monitor/AOC - #HS0117356
5-1/4 and 3-1/2 HD Drives

Network Node 10:
486 Gen 5 Processor - #049386SX034
Keyboard - #C92358122
Monitor/NEC - #G0989
5-1/4 AND 3-1/2 AND CD

Network Node 11:
486 Gen 5 Processor - #049386SX034
8 MEGS RAM
Keyboard - #C923582118
Monitor/NEC - #G1019
Optical Disk Drive/AAX-5200 - #G1019
Hand Scanner - #MC9202571
5-1/4 AND 3-1/2 DISK DRIVES

Network Node 12:
386 Gen 5 Processor - #059386SX034
Keyboard - #K89070743
Monitor/TVM - #25474581
5-1/4 AND A BACK-UP TAPE DRIVE

Network Node 13:
486 Gen 5 Processor - #AX3498
Keyboard - #K90066148
Monitor/NEC - #79C05421J
CD ROM - #CRMC-LUOOIS
3-1/2 DISK DRIVE

Bernolli Hard Drive CompUSA

Cannon Copier Model NP4540 RDF: #CDW14151
CD ROM Multimedia Kit (2) COMPUSA

HP DeskJet 500C Printer - #3141A12532
HP Laserjet III Printer: #3001A13554
Hewlett Packard Scannerjet Plus: #2812J38808

Modem 9600 Baud V.32/V.42b Practical Peripheral Serial # 101071510
Modem 9600b V.32bis (2) PAL Technology
Motherboard, 486-33 8 mb mem, 120mb hd, VRAM VGA (5) PAL Technology

Picture Publisher 3.0 & Hand scanner Picture Publisher
Power Supply: TRIPP LITE OMNI 450 LAN
Power Supply 200W (2) PAL Technology

HARDWARE COMPONENTS

Automatic Switching and Processing (Communication) CompUSA

Cable Serial Egghead Software
Cable 10 ft Parallel Printer COMP USA

Disk Drives: 1.2 MB FD 5 1/4 (5) PAL Technology
1.2 MB FD 5 1/4 COMPUSA
1.44 MB FD 3 1/2 (4) PAL Technology

EGA Video Cable Electronics Plus
Ethercard 99-000163-20 Standard Microsystems

Hard Disks: 80mb HD (2) PAL Technology
40 mb HD PAL Technology

Keyboard, 101 Key PAL Technology

Memory 8MB PAL Technology
Microsoft Serial Mouse Kits (4): #1351099V100 Egghead
Microsoft Serial Mouse kits (2): #1351099V100 COMPUSA

PC Switch/INMAC - #A05E76
Port card RS-232 (2) PAL Technology

Sound Blaster Board: #CT1350B & Amplified Stereo Speaker System

Ultrastor 12C controllor 1mb (2) PAL Technology
Unibind Binder - #UNIBIND 25 0365

SOFTWARE ARCHIVE:

Description and Serial #.	Vendor
ABC Flowcharter 2.0 #1300.00399	Micrografx,Inc
Actor Professional (4.0) #170-250V100	White-water Group
ADOBE Type Manager 2.0 Window's Version	ADOBE Systems
Adobe Plus #664586	ADOBE Systems
Advanced Math Applications Pack	Mathsoft
Alpha Four #217711 USA	Egghead Software
ATM for Windows #632786	
Auto Desk 3-D	Egghead Software
Autodesk Multimedia #71325D1	Egghead Software
Borland's C++ #DA141E10628336	MicroCenter
Brain Maker Neural Network Program	Calif Scientific SW
BrainMaker Professional	Calif Scientific SW
CA Realizer	
Chaos Dynamical Software I.4.1 & II.2	
Corel Draw #DL003-E30	Egghead Software
Corel Draw Upgrade Ver 2.0 #632703	Egghead Software
Corel Draw 2.01 (Upgrade)	Egghead Software
Creative Ghost Jr.	Vermont
CubiCalc for Win V1.2	HyperLogic Corp
DataSculptor 3.5", PC	NeuralWare, Inc.
Delta Graph for Window #2000005170	Delta Point
Deskview X operating system	Deskview
Doc-To-Help 1.1 #D2H101021	WexTech Systems, Inc
Drawperfect #DR000011280	Egghead Software
Drivers Toolkit	Far Point
Drover's Professional ToolBox for Windows #18898-TB	FarPoint Tech, Inc.
Farview Network Version	Sagelink Publishers
Ghost #EED-02236	Vermont
Harvard Graphics	Egghead Software
Harvard Graphics Ver 2.031 Update	Egghead Software
Harvard Graphics For Windows	SPC
Harvard Quick Chart	Egghead Software
Harvard Screen Show	Egghead Software
HiJaak #34625	Egghead Software
Home Office Integrated Messaging SW	CompUSA
Houdini and Hynet Double Demo	

HyNet Lan Utilities	Neil Larson
Hynet LAN	
HyperBBS (MaxThink 1990)	
HyperTerm (MaxThink 1990)	
Double-Demo HyperText (MaxThink 1990)	
Hynet Lan 93	Neil Larson
Hypercalc 1.2	Vanguard SW Corp
Hypercalc 2.0	Vanguard SW Corp
Hyperwriter	Ntergaid
HyperWriter Util Kit	Neil Larson
HyperNotePad LAN	MaxThink
HyperNotePad	Neil Larson
Hyper-Stat ver. 2.0 #03117079	The Idea Works, Inc.
Hyperwriter for Training Upgrade	Ntergaid
Hypertext Compiler	Neil Larson
Info Select	Micro Logic Corp
Info Select LAN for Windows	Micro Logic Corp
Install Pro 3.2 w/Hypertext	Knowledge Dynamics
Instant Database #0280-009429	Egghead Software
JAG for Windows 1.0 #46139-83-15	Ray Dream, Inc.
Knowledge Pro #1013080207	Knowledge Garden
Layout Version 2.0	Objects, Inc.
M.4 Visual Basic	Cimflex Teknowledge
M.4 version 2.0 #41007	Cimflex Teknowledge
Mathcad V3.1 #30055	Mathsoft, Inc.
MathCad Signal Processing Pkg	Mathcad
Mathcad Signal Processing 3.5 (CD ROM)	Mathsoft, Inc.
Matrix Layout	Matrix
Matt Whelan's Compiler Kit	Nantucket Corp.
MAXThink	Neil Larson
MAX 90 TransTest Update 90	
Metamorph #DR16927172	ThunderStone
Metamorph Upgrade	ThunderStone
Metamorph ver. 3.5 #1692717-1	Thunderstone
Micrografx V.2	Micrografx
MicroSoft Compiler C+	Egghead Software
Microsoft Windows Software Development Tools	Egghead Software
Microsoft C++	Egghead Software
Micrografx Designer 3.1 #DSLC15265A31	Micrografx, Inc.
MS Access 1.0 for Windows #077-051V100	Microsoft
MS DOS 5.0 Upgrade #665737	Egghead Software
Muscle 2.0 DOS	MicroHelp, Inc.
Muscle 2.0 for Windows	MicroHelp, Inc.
NeuroWindows ver 3.2 #632015071	Ward Systems Group
Norton PC Anywhere/LAN #D.RD202.D Peter	Norton Computing

Objectvision V1.0 #711945	Borland
Objectvision Upgrade 2.0	Borland
Objectvision VHS Format #TA252B10073126	Borland
Omnipage Pro. v2.1 #2804A-C-00-016070	Caere
Omni Page 2.1 #872-0090-110	Gen 5
Owl 3.0 #GPF300 305H 00 12075	Guide
Quattro Pro 4.0 #DA247B10401314	Borland
Quattro Plus #TA244C11177535	Egghead
Quattro Pro Update 3.0	Egghead
Pack Rat V 4.1	
Paradox Ver 3.5 #DA234C11229474	
Pascal with Objects 7.0 #PA917A10064478	Borland
Patriquin Utilities #51805	Patri-Soft
PC/Anywhere #A403074M	Egghead Software
PC/Anywhere upgrade V4.03 #SNA403074M	Egghead Software
PC/Anywhere LAN V4.03a #A005301J	DNA
PC Paint Brush IV Came with scanner Ver 1.0 #PBIV+71044a	
PC Paintbrush Upgrade	
PCTD V7.1	Central Point SW
PerFORM PRO	
Personal farVIEW	Sageline Publishing
Personal farVIEW Update	Sageline Publishing
PKZIP DOS PKZIP	PKware, Inc.
PKZIP PKUNZIP Software 1.1 #2586368206	PKware, Inc.
PKware Data Compression Library	PKWare, Inc.
PKZware Menu 1.0	PKware, Inc.
SNP for Work Groups	
Sagelink Compiler	Sagelink Publishers
SALDT Version 2.04	Clinton Software Assc.
Scan Jet Ver 2.1 Came with scanner	
Scrapbook + V2.2	Central Point Sw
Signal Processing	PC Mathsoft, Inc.
Signal Processing Function Pack	Mathcad
Snap It 3.0 #612.897.1305	Egghead Software
Stanford Graphics 2.0 #200201464	Egghead Software
Statistica 3.1 #G32101089415	Statsoft, Inc.
Statiscal Navigator Prof ver 2.0 #01110180	The Idea Works, Inc.
STB Evolution IBM Memory Graphics	CompUSA
Superprint # HP 11821A	Egghead Software
SUPERCONVERTER Data Translater Ver 8B.6	
Syplus Sytron #SPED110XXX XX5	Sytron
Systat Version 5.0 #DA1212	SYSTAT, Inc.
Systat for Windows 5.0 #DA0811	SYSTAT, Inc.
SYSTAT for Windows 5.01 #DA110992	SYSTAT, Inc.
Sytos PLUS #110XXX-X5	Sytron
10 Net Version Upgrade #0000861-15	Tiara, Inc.

Textware/Images (Textware No serial supplied)	
Transtext 91 Upgrade	MaxThink
Turbo Pascal #547497	Egghead Software
Turbo Pascal for Windows 3.0 #DA111C10047662	Borland
Turbo C #D2C0422741	Egghead Software
Turbo 6.0	Borland
Turbo Pascal Update	Borland
VBTools/DOS	MicroHelp, Inc.
VBTools ver 2.5	MicroHelp, Inc.
Visual Architect #18556-VA	FarPoint Tech, Inc
Visual Basic 1.0 #28555	Microsoft Corp.
Visual Basic Pro 2.0	Microsoft Corp.
Visual/db version 2.0	AJS Publishing, Inc.
Which Graph #075422	The Idea Works, Inc.
Whitewater Resource Toolkit 3.5 #WRT3501306	White-water Group
Windows 3.0	Egghead Software
Windows 3.1 #001-31-0008894776	Egghead Software
Windows for Workgroups #Q1XEO	Egghead Software
Windows 32 NT #226-173-002	Microsoft
Word, Bookshelf any/2.0 MM WD/BKS	Microsoft
Word For Windows 2.0	Microsoft
Word for Windows 3.0 #589531	Egghead Software
Wordperfect 5.1 #WP510336600	Egghead Software
WordPerfect for Windows 5.1 #WP510336600	Egghead Software
Work Group DOS 3.1	Connect
Workgroup Connections for MSDOS 3.1	Microsoft

FURNITURE AND OFFICE EQUIPMENT INVENTORY

1. The following furniture and office equipment purchased under the contract was transferred to the OMPAT, Department of Military Psychiatry, Division of Psychiatry, Walter Reed Army Institute of Research on 26 February 1993.

a. Furniture:

Qty	Description
1	Secretarial Desk
3	Hi Back Office Chairs
1	Oak Desk 36 x 72"
1	Oak Desk 30 x 60"
4	Pull Up Cushioned Chairs
1	Secretarial Chair
16	Grey Stack Chairs
1	Conference Table 8'
1	Conference Table, Desk Island
2	Storage Cabinets, Metal
7	Vertical File Cabinets, 4 Drawer
4	Oak Bookcases, 4 Shelf
1	Mid Manager Chair
4	Computer Workstations
1	Folding Table, 8'
1	Folding Table, 4'

b. Office Equipment

Qty	Description
3	Desk Calculators
1	Typewriter, Cannon
1	Copier, Cannon 4540 RDF
1	Facsimile, Panasonic VF-300, #350100282
1	Cassette Player

2. The following office equipment was provided by the government and returned to the OMPAT, WRAIR on 26 February 1993.

Qty	Description
1	Compaq Desktop Expansion Space/Overview: #1017AY0071
1	Hewlett Packard Lazerjet II
1	In-Focus System Part I Overview: #1574460
1	In-Focus System Part II Bed: #9A01354
1	Panasonic Cassette Tape Recording system with 8 Microphones w/stands 1 Mixer Cables